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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,487	02/27/2002	David Robert Baldwin	TD-171	5725

29106 7590 12/10/2003

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EXAMINER

WHELPLEY, MICHAEL V

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 12/10/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

TS

Office Action Summary

Application No.

10/085,487

Applicant(s)

BALDWIN, DAVID ROBERT

Examiner

Michael V Whelpley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s) 7.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bong (US Patent 6,377,265). Bong describes a digital differential analyzer with parallel processing paths for rendering images.

3. With regard to Claims 1 and 2, Bong describes a method of evaluating the parameters (which may include plane equations) of a pixel with respect to a base location on a vertex of the triangle. The parameters are calculated by obtaining the parameters at a starting vertex (which lies on the border to, and is not external to, the area being tested), and using linear interpolation to calculate the values at a plurality of spatial offsets from the starting vertex. (Col 7 Lines 17-35). It would have been obvious to those of ordinary skill in the art at the time the invention was made to apply this method to patches of pixels instead of scan lines because it provides a computationally inexpensive way of calculating the plane equations for a patch of pixels.

4. With regard to Claim 3, the rationale for the rejection of Claim 1 applies equally. The linear interpolation formula provided in Equation 1 constitutes a conversion of the plane equation into a format in which the pixel coordinates are referenced to a base location.

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5. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over McNamara et al (US Patent 6,329,977). McNamara describes a computer graphics system with pre-filtered antialiased lines using distance functions.

6. With regard to Claim 4, McNamara describes an edge function that determines the membership of pixels in a half-plane. The edge function is calculated for a particular pixel, which serves as a base point for the incremental calculation of the edge function for neighboring pixels (Col 8, Lines 14-48). It would have been obvious to those of ordinary skill in the art at the time the invention was made to clamp the extreme values of the edge function, because it is well known that the benefits of incremental computation are lost at higher distances from the base location.

7. With regard to Claim 5, the rationale for the rejection of Claim 1 applies equally. It would have been obvious to those of ordinary skill in the art at the time the invention was made to apply the edge function to patches of pixels in parallel rather than individual pixels, because it is well known that processes that must compute a large number of small equations will run faster when processed in parallel.

8. With regard to Claims 6 and 7, it would have been obvious to those of ordinary skill in the art at the time the invention was made to limit the dynamic range of the membership functions to 10 bits, because at that range the benefits of incremental computation from the base location are lost.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Whelpley whose telephone number is (703) 305-5584. The examiner can normally be reached on 8:30-5, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on (703) 305-3900. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-9724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9724.

MW


MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
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